THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A method for controlling an attitude of a vehicle in a space having at least two opposed viewable regions about said vehicle, each region being viewed by a respective first sensor for sensing a first frequency band of electromagnetic radiation and a respective second sensor for sensing a second frequency band of electromagnetic radiation, said method including the steps of:
   g) producing a first data set from said first sensor viewing a first of said regions;
   h) producing a second data set from said second sensor viewing said first region;
   i) modifying said second data set;
   j) combining the result of said modifying step with said first data set to form a third data set for said first region;
   k) repeating steps a) to d) for a second set of first and second sensors viewing an opposed viewable region; and
   l) adjusting the attitude of said vehicle until respective said third data sets for each opposed viewable region are substantially equal;

2. A method for controlling an attitude of a vehicle as claimed in claim 1, wherein said steps of modifying and combining reduces a bias introduced by a source of electromagnetic radiation in a viewable region.

3. A method for controlling an attitude of a vehicle as claimed in claim 2, wherein measurements by each of said second sensors in said second frequency band are substantially sensitive to said electromagnetic source and relatively insensitive to intensity differences between the sky and ground in said second frequency band.

4. A method as claimed in any one of claims 1 to 3, wherein said step of modifying includes multiplying said second data set by a predetermined factor K.
5. A method for controlling an attitude of a vehicle as claimed in any one of claims 1 to 4, wherein said step of combining includes subtracting said result of said modifying step from said first data set.

6. A method for controlling the attitude of a vehicle as claimed in any one of claims 1 to 5, wherein said steps of producing first and second data sets further includes the step of logarithmically compressing said data sets.

7. A method for controlling the attitude of a vehicle as claimed in claim 2, wherein said sensors are imaging sensors and said data sets produced from said sensors correspond to measurements made for each pixel of each of said imaging sensors, said imaging sensors furthermore adjusted to be substantially saturated by said electromagnetic source, wherein said step of modifying includes determining a subset of said first data set corresponding to said saturated pixels in said first data set from said first sensor and said step of subtracting includes removing an equivalent subset of data from the second data set data from said second sensor to form said third data set.

8. A method for controlling an attitude of a vehicle as claimed in any one of the preceding claims further including the steps of:
   m) calculating an anti-correlation value for each of said respective third data sets, and
   n) reducing the step of adjusting if said anti-correlation value is low.

9. A method for controlling an attitude of a vehicle as claimed in claim 8, wherein said anti-correlation value is calculated by determining the complement of a Hassenstien-Reichardt correlation detector.

10. A method for controlling an attitude of a vehicle as claimed in any one of the preceding claims, wherein said first frequency band of electromagnetic radiation is in the ultraviolet frequencies and said second frequency band is in the green spectra frequencies and the source of electromagnetic radiation is the sun.

11. A method for controlling an attitude of a vehicle as claimed in any one of claims 1 to 9, wherein at least of one said first and second frequency bands corresponds to the mm wavelength band.

12. A method for controlling an attitude of a vehicle as claimed in any one of the preceding claims wherein said opposed viewable regions are to the left and right of said vehicle and the attitude of the vehicle controlled is roll.

13. A method for controlling an attitude of a vehicle as claimed in any one of claims 1 to 11 wherein said opposed viewable regions are fore and aft of said vehicle and the attitude of the vehicle controlled is pitch.

14. A method for controlling an attitude of a vehicle as claimed in any one of claims 1 to 11 wherein said opposed viewable regions are to the left and right of said vehicle and to the fore and aft of said vehicle respectively and both vehicle roll and pitch is controlled.

15. A method for controlling an attitude of a vehicle as claimed in claim 14 wherein said first and second data sets corresponding to the aft viewable region are generated by modifying and combining respective first and second data sets from said left and right viewable regions thereby eliminating the requirement for sensors viewing said aft region.

16. A vehicle whose attitude is being controlled according to the method of any one of claims 1 to 15.

17. A method for calculating the attitude of a vehicle in a space having a viewable region, said region being viewed by a first and second pair of sensors, each of first and second pair including a first sensor for sensing a first frequency band of electromagnetic radiation and a second sensor for sensing a second frequency band of electromagnetic radiation, said first pair of sensors being tilted a first predetermined angle to view a first sub-region substantially above and including a horizon, and said second pair of sensors being tilted a second predetermined angle to view a second sub-region substantially below and including the horizon; the method including the steps of :

h) producing a first data set from said first sensor of said first pair;

i) producing a second data set from said second sensor of said first pair;

j) modifying said second data set;

k) combining the result of said modifying step with said first data set to form a third data set for said first pair;

l) repeating steps a) to d) for said first and second sensors of said second pair;

m) determining a relationship between a change in intensity between said third data sets and said vehicle attitude; and

n) calculating said vehicle attitude from said relationship.

18. A method for calculating the attitude of a vehicle as claimed in claim 17, wherein said step of determining includes calculating an angular difference between said first and second predetermined angles.

19. A method for calculating the attitude of a vehicle as claimed in claim 17 or 18, further including the step of calculating the rate of change of vehicle attitude.

20. A method for calculating the attitude of a vehicle as claimed in claim 17 to 19, wherein said steps of modifying and combining reduce an intensity bias introduced by a source of electromagnetic radiation in said viewable region.

21. A method for calculating the attitude of a vehicle as claimed in claim 20, wherein measurements by each of said second sensors of each pair in said second frequency band are substantially sensitive to said electromagnetic source and relatively insensitive to intensity differences between the sky and ground in said second frequency band.

22. A method for calculating the attitude of a vehicle as claimed in claim 21, wherein the first band of electromagnetic radiation is in the ultraviolet frequencies and the second band is in the green spectra frequencies and the source of electromagnetic radiation is the sun.

23. A method for calculating the attitude of a vehicle as claimed in claim 21, wherein at least of one said first and second frequency bands is in the mm band of frequencies.

24. A method for calculating the attitude of a vehicle as claimed in any one of claims 17 to 23, wherein said viewable region is to the left or right of said vehicle and said vehicle roll is determined.

25. A method for calculating the attitude of a vehicle as claimed in any one of claims 17 to 23 wherein said viewable region is to the fore or aft of said vehicle and said vehicle pitch is determined.

26. A method for reducing the effects of a source of electromagnetic radiation when viewing a region to detect variations in background intensity in said region, said method including the steps of:

a) producing a first data set from a first sensor viewing said region in a first frequency band;

b) producing a second data set from a second sensor viewing said region in said second frequency band;

c) modifying said second data set; and

d) combining the result of said modifying step with said first data set to form a third data set for said region, said third data set containing data wherein said effects of said electromagnetic source are substantially reduced relative to said variations in background intensity.

27. A method for reducing the effects of a source of electromagnetic radiation as claimed in claim 26, wherein measurements by said second sensor in said second frequency band is substantially sensitive to said electromagnetic source and relatively insensitive to intensity differences between variations in background intensity in said second frequency band.

28. A method for reducing the effects of a source of electromagnetic radiation as claimed in any one of claims 26 or 27, wherein said step of modifying includes multiplying said second data set by a predetermined factor K.

29. A method for reducing the effects of a source of electromagnetic radiation as claimed in any one of claims 26 to 28, wherein said step of combining includes subtracting said result from said modifying step from said first data set.

30. A method for reducing the effects of a source of electromagnetic radiation as claimed in any one of claims 26 to 29, wherein said steps of producing first and second data set further includes the step of logarithmically compressing said data sets.

31. A method for reducing the effects of a source of electromagnetic radiation as claimed in any one of claims 26 to 30, wherein said first frequency band of electromagnetic radiation is in the ultraviolet frequencies and said second frequency band is in the green spectra frequencies and the source of electromagnetic radiation is the sun.

32. A method for reducing the effects of a source of electromagnetic radiation as claimed in any one of claims 26 to 31, wherein at least of one said first and second frequency bands corresponds to the mm wavelength band.

33. An apparatus for controlling an attitude of a vehicle in a space having at least two opposed viewable regions about said vehicle, said apparatus including for viewing each region, a respective first sensor for sensing a first frequency band of electromagnetic radiation and a respective second sensor for sensing a

second frequency band of electromagnetic radiation, said apparatus further including:

f) respective first data capture means for producing first data sets from said first sensors viewing each of said regions;

g) respective second data capture means for producing second data sets from said second sensors viewing each of said regions;

h) respective first processor means for modifying each of said second data sets;

i) respective second processor means for combining the results of each of said first processor means with said first data sets to form respective third data sets for each of said regions; and

j) control signal generation means for generating a control signal to adjust the attitude of said vehicle until respective said third data sets for each opposed viewable region are substantially equal.

34. An apparatus for controlling an attitude of a vehicle as claimed in claim 33, wherein said respective first and second processing means act to reduce a bias introduced by a source of electromagnetic radiation in a viewable region.

35. An apparatus for controlling an attitude of a vehicle as claimed in claim 33 or 34, wherein measurements by each of said second sensors in said second frequency band are substantially sensitive to said electromagnetic source and relatively insensitive to intensity differences between the sky and ground in said second frequency band.

36. An apparatus as claimed in any one of claims 33 to 35, wherein said respective first processor means multiplies said second data set by a predetermined factor K.

37. An apparatus for controlling an attitude of a vehicle as claimed in any one of claims 33 to 36, wherein said respective second processor means subtracts the result of said first processing means from said first data set.

38. An apparatus for controlling an attitude of a vehicle as claimed in any one of claims 33 to 37 further including:

k) third processing means for calculating an anti-correlation value for each of said respective third data sets, and

l) control signal adjusting means to reduce the effect of said control signal if said anti-correlation value is low.

39. An apparatus for controlling an attitude of a vehicle as claimed in any one of the claims 33 to 38, wherein said first frequency band of electromagnetic radiation is in the ultraviolet frequencies and said second frequency band is in the green spectra frequencies and the source of electromagnetic radiation is the sun.

40. An apparatus for controlling an attitude of a vehicle as claimed in any one of claims 33 to 39, wherein at least of one said first and second frequency bands corresponds to the mm wavelength band.

41. An apparatus for calculating the attitude of a vehicle in a space having a viewable region, said apparatus including for viewing said region, a first and second pair of sensors, each of first and second pair including a first sensor for sensing a first frequency band of electromagnetic radiation and a second sensor for sensing a second frequency band of electromagnetic radiation, said first pair of sensors adapted to be tilted a first predetermined angle to view a first sub-region substantially above and including a horizon, and said second pair of

sensors adapted to be tilted a second predetermined angle to view a second sub-region substantially below and including the horizon; said apparatus further including:

g) respective first data capture means for producing respective first data sets from said first sensors of each pair;

h) respective second data capture means producing second data sets from said second sensors of each first pair;

i) respective first processor means for modifying each of said second data sets;

j) respective second processor means for combining the results of each of said first processor means with said first data sets to form respective third data sets for each pair of sensors;

k) third processor means for determining a relationship between change in intensity between said third data sets and vehicle attitude; and

l) calculating means to calculate said vehicle attitude according to said relationship.

42. An apparatus for calculating the attitude of a vehicle as claimed in claim 41, wherein said calculating means further calculates the rate of change of vehicle attitude.

43. An apparatus for calculating the attitude of a vehicle as claimed in claim 41 or 42, wherein said respective first and second processing means act to reduce a bias introduced by a source of electromagnetic radiation in said viewable region.

44. An apparatus for calculating the attitude of a vehicle as claimed in claim 41 to 43, wherein measurements by each of said second sensors of each pair in said

second frequency band are substantially sensitive to said electromagnetic source and relatively insensitive to intensity differences between the sky and ground in said second frequency band

45. An apparatus for calculating the attitude of a vehicle as claimed in claim 44, wherein the first band of electromagnetic radiation is in the ultraviolet frequencies and the second band is in the green spectra frequencies and the source of electromagnetic radiation is the sun

46. An apparatus for calculating the attitude of a vehicle as claimed in claim 44, wherein at least of one said first and second frequency bands corresponds to the mm wavelength band.

47. An apparatus for reducing the effects of a source of electromagnetic radiation when viewing a region to detect variations in background intensity in said region, said apparatus including:

a) first data capture means for producing a first data set from a first sensor viewing said region in a first frequency band;

b) second data capture means for producing a second data set from a second sensor viewing said region in said second frequency band;

c) first processor means for modifying said second data set;

d) second processor means for combining the result of said first data processor means with said first data set to form a third data set for said region, said third data set containing data wherein said effects of said electromagnetic source are substantially reduced relative to said variations in background intensity.

48. An apparatus for reducing the effects of a source of electromagnetic radiation as claimed in claim 47, wherein measurements by said second sensors in said

second frequency band are substantially sensitive to said electromagnetic source and relatively insensitive to intensity differences between variations in background intensity in said second frequency band.

49. An apparatus for reducing the effects of a source of electromagnetic radiation as claimed in any one of claims 47 or 48, wherein said first processor means multiplies said second data set by a predetermined factor K.

50. An apparatus for reducing the effects of a source of electromagnetic radiation as claimed in any one of claims 47 to 49, wherein said second processor means subtracts the result of said first processing means from said first data set.

51. An apparatus for reducing the effects of a source of electromagnetic radiation as claimed in any one of claims 47 to 50, wherein said first frequency band of electromagnetic radiation is in the ultraviolet frequencies and said second frequency band is in the green spectra frequencies and the source of electromagnetic radiation is the sun.

52. An apparatus for reducing the effects of a source of electromagnetic radiation as claimed in any one of claims 47 to 50, wherein at least of one said first and second frequency bands is in the mm band of frequencies.

53. A method for controlling an attitude of a vehicle said method including the steps of:

a) taking a first measurement in a first spectral band;

b) taking a second measurement in a second spectral band;

c) processing at least one of said first and second measurements with respect to each other;

d) producing a control signal as a result of said processing step to control said attitude of said vehicle;

54. An apparatus for controlling an attitude of a vehicle said apparatus including:

a) a first sensor for taking a first measurement in a first spectral band;

b) a second sensor for taking a second measurement in a second spectral band;

c) a processor for processing at least one of said first and second measurements with respect to each other;

d) control signal generator responsive to said processor for producing a control signal to control said attitude of said vehicle;